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TITLE: Strip indentations for label forming - have edges converging into strip edge with **rounded corners**

PATENT-ASSIGNEE: DELFORD IND SYSTEMS[DELFN]

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(19)

(54) LABEL STRIP

(71) We, DELFORD INDUSTRIAL SYSTEMS LIMITED, a British Company of Regent Trading Estate, Leatherhead, Surrey, do hereby declare the invention for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention concerns a label strip.

According to the present invention there is provided a label strip at least one of whose opposite sides is provided at regular intervals with indentations, the strip being capable of being formed into labels by being cut along a plurality of longitudinally spaced transverse lines which respectively extend to different indentations, each indentation being defined by a pair of longitudinally spaced apart transverse edges whose inner ends are interconnected by a substantially linear longitudinally extending edge, the transverse edge converging towards each other and extending along or closely adjacent to straight lines which intersect inwardly of and remote from the respective longitudinally extending edge. Each of the said opposite sides is preferably provided with said indentations.

Preferably, the said straight lines intersect adjacent to the longitudinal centre line of the label strip.

Each said transverse edge may be substantially of sinusoidal form.

Each of the transverse edges preferably merges smoothly into the respective side of the layer strip and into the respective longitudinally extending edge.

Preferably, the portion of each of the said opposite sides which extend between the indentations are linear.

The label strip may be a heat-sealable strip or a self-adhesive strip provided with a removable backing strip.

The label strip may, if desired, be used both on non-rotary hand-portable labelling machines, and on large motor-actuated labelling machines.

The invention is illustrated, merely by way of example, in the accompanying drawings, in which:—

Figure 1 is a plan view of part of a label strip according to the present invention, and

Figure 2 shows part of the label strip of Figure 1 on a larger scale.

Referring to the drawings, a self-adhesive or heat-sealable label strip 10 has parallel opposite sides 11, 12 each of which is provided at regular intervals with identations 13 which are aligned with those of the other side. The strip 10 is capable of being formed into a longitudinal series of labels 14 by being cut along a plurality of longitudinally spaced transverse guillotine lines 15 each of which extends between an aligned pair of indentations 13. The portions 16 of each of the sides 11, 12 which extend between the indentations 13 are linear, the indentations 13 providing the label strip 10 with "ears" 17.

Each indentation 13 is defined by a pair of longitudinally spaced apart transverse edges 20 each of which merges smoothly both into the respective sides 11, 12 of the label strip 10 and into a substantially linear longitudinally extending edge 21 which interconnects the inner edges of the pair of transverse edges 20. Each transverse edge 20 is cooperable with a registration claw or driving unit (not shown) which can control the feed of the label strip 10 over a dispensing edge (not shown) or can control an overprinting operation.

The transverse edges 20, which may be of substantially sinusoidal form as shown, converge towards each other and extend along or closely adjacent to straight lines 22 towards each other. The straight lines 22 intersect adjacent the longitudinal centre line 23 of the label strip 10 and thus inwardly of and remote from the respective longitudinally extending edge 21.

The label strip shown in the drawings has a number of important features. Firstly, it will be noted that the shape of the labels 14 is substantially rectangular and does not have large outwardly or inwardly extending peripheral regions which limit the effective label

area which carries the printing or overprinting.

Secondly, and more importantly, by reason of the fact that the transverse edges 20 extend along or closely adjacent to straight lines 22 which themselves intersect inwardly of and remote from the respective longitudinally extending edge 21, the angle α between each straight line 22 and the transverse guillotine line 15 ,which is itself normal to the longitudinal centre line 23) is small. Thus the angle α may be kept to less than 20°, e.g. to 10° as shown. Since the angle α is small, the position of the said registration claw or driving unit with respect to the label strip 10 will be substantially unaffected by manufacturing variations in the web width. Thus if, for example, the registration claw or driving unit had to contact a radiused edge, a slight variation in label width would produce a disproportionately large misregister in label or print position. Put differently, the rate of change of direction of each transverse edge 20 with respect to the longitudinal centre line 23 is small. Thus control of the feed label strip 10 over the dispensing edge, or control of an overprinting operation, may be accurately effected without the need to provide the label strip 10 with holes or perforations for cooperating with a pin wheel in an applicator device.

Thirdly, the ears 17 are not so shaped as to be weak or prone to buckling. Thus, by reason of the fact that the lines 22 taper towards each other and are therefore not normal to the longitudinal centre line 23, the indentations may be made of sufficient longitudinal length to accommodate the registration claw without there being an undue risk of the ears 17 catching in a reel carrying the label strip and without an undue risk that the latter will not unwind readily.

Fourthly, the indentations 13 do not have sharp discontinuities in shape such as would weaken the label strip 10 and cause the backing strip to tear as it passes over the dispensing edge.

Fifthly, since the edge 21 extend longitudinally, the positions of the transverse guillotine lines 15 which intersect the edges 21 may vary longitudinally to a fairly considerable extent without the shape of the labels 14 being aesthetically unacceptable.

WHAT WE CLAIM IS:—

1. A label strip at least one of whose opposite sides is provided at regular intervals with indentations, the strip being capable of being formed into labels by being cut along a plurality of longitudinally spaced transverse lines which respectively extend to different indentations, each indentation being defined by a pair of longitudinally spaced apart transverse edges whose inner ends are interconnected by a substantially linear longitudinally extending edge, the transverse edges converging towards each other and extending along or closely adjacent to straight lines which intersect inwardly of and remote from the respective longitudinally extending edge.

2. A label strip as claimed in claim 1 in which the said straight lines intersect adjacent to the longitudinal centre line of the label strip.

3. A label strip as claimed in claim 1 or 2 in which each said transverse edge is substantially of sinusoidal form.

4. A label strip as claimed in any preceding claim in which each of the transverse edges merges smoothly into the respective side of the label strip and into the respective longitudinally extending edge.

5. A label strip as claimed in any preceding claim in which each of the opposite sides is provided with said indentations.

6. A label strip as claimed in claim 5 in which the portions of each of the said opposite sides which extend between the indentations are linear.

7. A label strip as claimed in any preceding claim in which the label strip is a heat-sealable strip or a self-adhesive strip provided with a removable backing strip.

8. A label strip substantially as hereinbefore described with reference to and as shown in the accompanying drawings.

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1 SHEET This drawing is a reproduction of the Original on a reduced scale

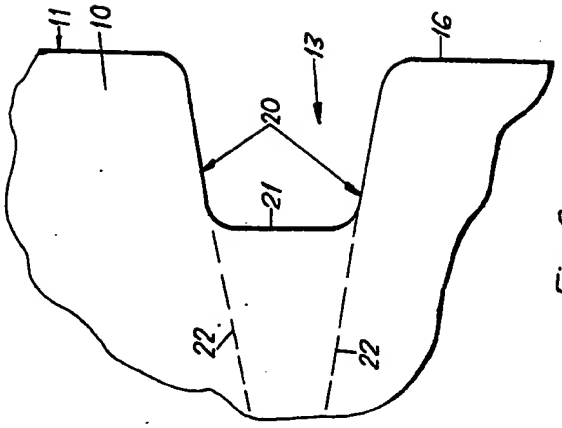

Fig. 2.

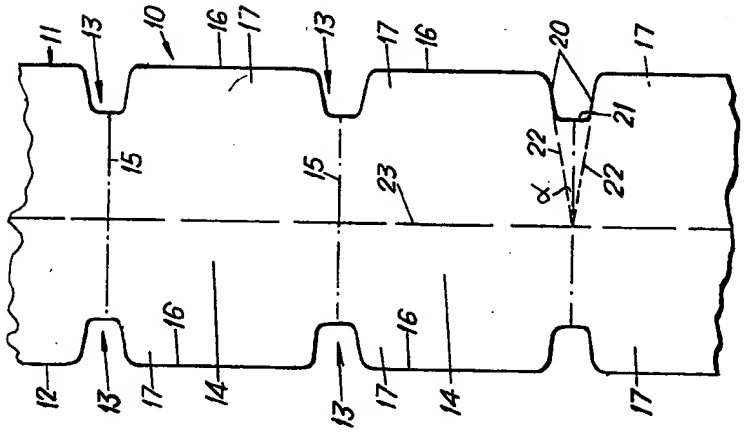

Fig. 1.